USATKO, Yu.I.; FEDASH, N.P.

Manganese diethyldithiocarbamate in nonaqueous solvents. Trudy Kom.anal.khim. 14:183-190 '63. (MIRA 16:11)

GALUSHKO, V.P.; FEDASH, P.M.; VARENKO, Ye.S.

Nature of the acceptor in the electrolytic dissolution of copper in orthophosphoric acid. Ukr. khim. zhur. 31 no. 11:1214-1219 '65 (MIRA 19:1)

1. Dnepropetrovskiy gosudarstvennyy universitet.

L 34424-66 EWT(m)/EWP(t)/ETI IJP(c) JD/WB
(N)

ACC NR: AP6003319 SOURCE CODE: UR/0365/66/002/001/0038/0040

AUTHOR: Brynza, A. P.; Fedash, V. P.; Kovtun, V. N.

ORG: Dnepropetrovsk State University (Dnepropetrovskiy gosudarstvennyy universitet)

TITLE: Determination of impedance of titanium electrodes during anode polarization in sulfuric acid

SOURCE: Zashchita metallov, v. 2, no. 1, 1966, 38-40

TOPIC TAGS: electrode, titanium, electric impedance, polarization, electric potential

ABSTRACT: The resonance method described by V. N. Kovtun and V. P. Galushko (Zh. fiz. khimii, 1965, 39, 1028) was used for measuring the impedance components (polarization capacitance C_s and active component of resistance R_s) as a function of frequency of a Ti electrode, made of titanium VT-1 (electrode surface 0.25 cm^2), in 5N H_2SO_4. The maximum C_s and the minimum R_s were observed during anode polarization in 5N H_2SO_4 solution within the potential range from stationary to complete passivation (-0.07 v). These extreme points corresponded to the potential of the beginning of passivation (-0.2 v). During displacement of the potential

UDC: 541.138.2

Card 1/2

FEDAK, Jerzy

Notes on the classification of rocks for mechanical rotational boring.
Przegl geol 11 no.7:387-388 Jl '61.

FEDCHENKO, A.I

DUBROV, N.F., kand. tekhn. nauk; MIKHAYLOV, O.A., kand. tekhn. nauk; FEL'DMAN, I.A.; DANILOV, A.M.; SOROKIN, P.Ya., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; BUTAKOV, D.K., kand. tekhn. nauk, dots.; SOYFER, V.M.; LATASH, Yu.V., mladshiy nauchnyy sotrudnik; ZAMOTAYEV, S.P.; BEYTEL'MAN, A.I.; SAPKO, A.I.; PETUKHOV, G.K., kand. tekhn. nauk; YEDNERAL, F.P., kand. tekhn. nauk, dots.; LAPOTYSHKIN, N.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; ROZIN, R.M.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LAVRENT'YEV, B.A.; SHILYAYEV, B.A.; SHUTKIN, N.I.; GNUCHEV, S.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LYUDEMAN, K.F., doktor-inzh., prof.; GHUZIN, V.G., kand. tekhn. nauk; BARIN, S.Ya.; POLYAKOV, A.Yu., kand. tekhn. nauk; FEDCHENKO, A.I.; AGEYEV, P.Ya., prof., doktor; SAMARIN, A.M.; BOKSHITSKIY, Ya.M., kand. tekhn. nauk; GARNYK, G.A., kand. tekhn. nauk; MARKARYANTS, A.A., kand. tekhn. nauk; KRAMAROV, A.D., prof., doktor tekhn. nauk; TEDER, L.I.; DANILOV, P.M.

Discussions. Biul. TSNIIGHM no.18/19:69-105 '57. (MIRA 11:4)

1. Direktor Ural'skogo instituta chernykh metallov (for Dubrov). 2. Direktor TSentral'nogo instituta informatsii chernoy metallurgii (for Mikhaylov). 3. Nachal'nik nauchno-issledovatel'skogo otdela osobogo konstruktorskogo byuro tresta "Elektropech'" (for Fel'dman). 4. Nachal'nik martenovskoy laboratorii Zlatoustovskogo metallurgicheskogo zavoda (for Danilov, A.M.). 5. Laboratoriya protsessov stalevareniya Instituta metallurgii Ural'skogo filiala AN SSSR (for Sorokin).

(Continued on next card)

DUBROV, N.F.--(continued) Card 2.
6. Ural'skiy politekhnicheskiy institut (for Butakov). 7. Starshiy inzhener Bryanskogo mashinostroitel'nogo zavoda (for Soyfer). 8. Institut elektrosvarki im. Patona AN URRS (for Latash). 9. Nachal'nik TSentral'noy zavodskoy laboratorii "Uralmashzavoda" (for Zamotayev). 10. Dnepropetrovskiy metallurgicheskiy institut (for Sapko). 11. Moskovskiy institut stali (for Yedneral). 12. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Gmuchev, Lapotyshkin). 13. Starshiy master Leningradskogo zavoda im. Kirova (for Rozin). 14. Institut metallurgii im. Baykova AN SSSR (for Novik, Polyakov, Garnyk). 15. Nachal'nik tekhnicheskogo otdela zavoda "Bol'shevik" (for Lavrent'yev). 16. Starshiy inzhener tekhnicheskogo otdela Glavspetsstali Ministerstva chernoy metallurgii (for Shilyayev). 17. Zamestitel' nachal'nika tekhnicheskogo otdela zavoda "Elektrostal'" (for Shutkin). 18. Freybergskaya gornaya akademiya, Germanskaya Demokraticheskaya Respublika (for Lyudeman). 19. Zaveduyushchiy laboratoriyey stal'nogo lit'ya TSentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya (for Gruzin). 20. Starshiy master elektrostaleplavil'nykh pechey Uralvagonzavoda (for Barin). 21. Zamestitel' nachal'nika elektrostaleplavil'nogo tsekha zavoda "Sibelektrostal'" (for Fedchenko). 22. Zaveduyushchiy kafedroy metallurgii stali i elektrometallurgii chernykh metallov Leningradskogo politekhnicheskogo instituta (for Ageyev). 23. Zamestitel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

(Continued on next card)

DUBROV, N.P.---(continued) Card 3.
24. Nachal'nik laboratorii TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Bokshitskiy). 25. Zaveduyushchiy kafedroy elektrometallurgii Sibirskogo metallurgicheskogo instituta (for Kramarov). 26. Nachal'nik elektrostaleplavil'nogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Tedor). 27. Nachal'nik elektrometallurgicheskoy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Danilov, P.M.).
(Steel--Metallurgy)

FEDCHENKO, A.M.

128-58-4-10/18

AUTHORS: Pasternak, N.B., Shurupov, V.I., Fedchenko, A.M., Kosenko N.A., Engineers

TITLE: Using Molds of Aluminum "AL-9" for Cast Iron-Castings (Lit'ye chuguna v formy iz splava AL-9)

PERIODICAL: Liteynoye Proizvodstvo, 1958, No. 4, p 24 (USSR)

ABSTRACT: The aluminum alloy AL-9 ("GOST 2685-53" standard) was tested and proved a suitable material for molds. The authors share experience in casting cast iron into such molds. The alloy was melted in a coreless induction furnace under a flux consisting of 55% KCl and 45% NaCl, and modified by a mixture of 25% NaF, 12.5% KCl and 62.5% NaCl. It was cast, at 690-710°C, into a negative mold pre-heated to 200-220°C and kept for 15-20 sec in the mold, then air-cooled. The work surfaces of the aluminum molds (mold halves) were anodized. The article contains detailed information on the casting process (the composition of the refractory mold lining, the temperatures of mold pre-heating, and of cast iron at pouring, etc.). The castings were chilled through. The molds did not melt, corrode, or crack.

There are 4 references, 3 of which are Soviet and 1 English.

AVAILABLE: Library of Congress

Card 1/1 1. Molds-Aluminum-Test methods 2. Molds-Aluminum-Test results

KHUDOKORMOV, D.N.; YERSHOVICH, A.N.; Prinimali uchastiye: FEDCHENKO, A.M.; SHURUPOV, V.I.; BOLOTSKIY, V.D.; KOMAROV, O.S.; ANDROSIK, Ye.I.; KUDI, V.I.; GALUSHKO, A.M.; KLEYEV, A.N.; KHOSEN, R.I.; MURASHKO, O.A.

Technology of the production of gray cast iron in the manufacture of tractor trucks. Lit. proizv. no.7:37-38 Jl '63. (MIRA 17:1)

1. Nauchno-issledovatel'skiy tekhnologicheskiy institut avtomobil'noy promyshlennosti (for all except Khudokormov).

KHUDOKORMOV, D.N.; FEDCHENKO, A.M.; RUSYY, V.D.

Effect of the structure of pearlitic cast iron on its machinability. Lit. proizv. no.3:38 Mr '64. (MIRA 18:9)

SPIVAK, M.S., glavnyy redaktor; BELOZUB, V.G., redaktor; VASILENKO, P.M., redaktor; ZORIN, I.G., redaktor; IL'CHENKO, I.K., redaktor; KOVAL', A.G., redaktor; KRYLOV, A.F., redaktor; PUKHAL'SKIY, A.V., redaktor; SIDORENKO, A.P., redaktor; FEDCHENKO, A.N., redaktor; ANGELINA, P.N., redaktor; BUZANOV, I.F., redaktor; BOYKO, D.V., redaktor; BURKATSKAYA, G.Ye., redaktor; VASILENKO, A.A., redaktor; VLASYUK, P.A., redaktor; GORODNIY, N.G., redaktor; DEMIDENKO, T.T., redaktor; DUBKOVETSKIY, F.I., redaktor; KIRICHENKO, F.G., redaktor; LITOVCHENKO, G.P., redaktor; OZERNYY, M.Ye., redaktor; PERSHIN, P.N., redaktor; POPOV, F.A., redaktor; POSMITNYY, M.A., redaktor; PSHENICHNYY, P.D., redaktor; RADCHENKO, B.P., redaktor; ROMANENKO, I.N., redaktor; RUBIN, S.S., redaktor; SAVCHENKO, M.Kh., redaktor; SOKOLOVSKIY, A.N., redaktor; TSYBENKO, K.Ye., redaktor; KOVAL'SKIY, V.F., tekhnicheskiy redaktor

[Practical collective farm encyclopedia] Kolkhoznaia proizvodstvennaia entsiklopediia. Izd.2-oe, ispr. i dop. Kiev, Gos.izd-vo sel'khoz. lit-ry USSR. Vol.1. Abrikos - liutserna. 1956. 688 p. (MLRA 10:9)
(Agriculture--Dictionaries)

Fedchenko, A.N.

SPIVAK, M.S., glavnyy red.; BELOZUB, V.G., red.; VASILENKO, P.M., red.; ZORIN, I.G., red.; IL'CHENKO, I.K., red.; KOVAL', A.G., red.; KRYLOV, A.F., red.; PUKHAL'SKIY, A.V., red.; SIDORENKO, A.P., red.; FEDCHENKO, A.N., red.; ANGELINA, P.N., red.; BUZANOV, I.F., red.; BOYKO, D.V., red.; BURKATSKAYA, G.Ye., red.; VASILENKO, A.A., red.; VLASYUK, P.A., red.; GORODNIY, N.G., red.; DEMIDENKO, T.T., red.; DUBKOVETSKIY, F.I., red.; KIRICHENKO, F.G., red.; LITOVCHENKO, G.P., red.; OZERNYY, M.Ye., red.; PERSHIN, P.N., red.; POPOV, F.A., red.; POSMITNYY, M.A., red.; PSHENICHNYY, P.D., red.; RADCHENKO, B.P., red.; ROMANENKO, I.N., red.; RUBIN, S.S., red.; SAVCHENKO, M.Kh., red.; SOKOLOVSKIY, A.N., red.; TSYBENKO, K.Ye., red.; KOVAL'SKIY, V.F., tekhn.red.

[Practical collective farm encyclopedia] Kolkhoznaia proizvodstvennaia entsiklopediia. Izd. 2-oe, perer. i dop. Kiev, Gos. izd-vo sel'khoz. lit-ry USSR. Vol.2. Malina-Mashchur. 1957. 923 p. (MIRA 11:4)
(Agriculture--Dictionaries)

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Puteshestviye V Turkestan (Journey into Turkestan) Moskva, Geografgiz, 1950.
466 P. Illus., Maps, Port., Tables.
Bibliography: P. 462-466.

AVS

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R000412530008-8"

FEDCHENKO, A.P.; VALASHEK, Ye.R.; SMIRENSKIY, S.P.

Raise the quality of standards set up by institutes. Med. prom. 17 no.6:6-9 Je'63 (MIRA 17:4)

1. Gosudarstvennyy proyektnyy institut po proyektirovaniyu meditsinskoy promyshlennosti.

FEDCHENKO, Boris Alekseevich

FEDCHENKO, Boris Alekseevich. Ocherk rastitel'nosti Turkestana. Leningrad, AN SSSR, 1925. 55 p. (Monografii izdavaemye KEPS Ak. Nauk SSSR.).
DLC: Unclass.

SO: LC, Soviet Geography, Part II, 1951/Unclassified.

DUBYANSKI, V. A.; FEDCHENKO, B. A.; NEKRASOV, V. A.

"Rasteniya upotreblyaemye v tuzemnoi meditsine," Botaniko-geograficheski sbornik (Rastitel'nost SSSR), Leningrad, 1925, 232 pp.

FEDCHENKO, B.

VASIL'KOVSKIY, Petryevcen'yevich and B. FEDCHENKO.....Priroda i naselenie Leningradskoi Oblasti; spravochnaia kniga po kraevedeniiu. Moskva, Gosizdat, 1928. 167 p.

DLC: GB236.V3

SO: LC, Soviet Geography, Part II, 1951/Unclassified

Aug 1946

IRAN/Ore Deposits
Climate

"Vegetable Resources of Iran and Their Study," Prof
B. A. Fedchenko, 13 pp

"Priroda" No 8

The time has come for a better understanding of the peoples, topography, geography, fauna and flora of Iran so as to be able to promote greater national friendliness. As a result, the author discusses the orography of Iran, past geology, climate, administrative divisions, flora, bibliography, and a more definite classification of the flora, botanical, geographical regions, vegetable resources of Iran, agricultural products, decorative shrubs, deciduous shrubs, oaks, and various green fodders.

ID

36E72

FEDCHENKO, B. A., Prof

FEDCHENKO, B. A.

Fedchenko, B. A. - "New species of the genus Hedysarum L.," Boten. materialy Gerbariya Botan. in-ta im. Komarova Akad. nauk SSSR, Vol. XI, 1949, p. 114-19

SO: U-4934, 20 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

FEDCHENKO P. A.

Fedchenko, B. A.- "What is Pachyadenia parviflora Fisch (in Herb)?" Botan. materialy Gerbariya Botan. in-ta im. Komarova Akad. nauk SSSR, Vol. XI, 1948, p. 122-24

SO: U-4934, 20 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

FEDCHENKO B. A.

Fedchenko, B. A.- "What is Cordia Hartwissiana Rgl?" Botan. materialy Gerbariya Bont. in-ta im. Komarova Akad. nauk SSSR, Vol. XI, 1949, P. 127-28, - Bibliog: 5 items

SO: U-4934, 29 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

FEDCHENKO, B.H.

BLINOVSKIY, K.V.; BORISOVA, A.G.; VASIL'CHENKO, I.T.; MEFFERT, V.V.; NIKITIN, V.V.; POYARKOVA, A.I.; SHAPARENKO, K.K.; [illegible] SHISHKIN, B.K.; ZMDEN, O.A.; VASIL'YEV, A.O., tekhnicheskiy redaktor; PETROVA, K.T., tekhnicheskiy redaktor

[Flora of Turkmenistan] Flora Turkmenii. Ashkhabad, Izd-vo Turkmenskogo filiala Akad.nauk SSSR. Vol.4. 1950. 271 p. (MLRA 10:7)

1. Chlen-korrespondent Akademii nauk SSSR (for Shishkin)
(Turkmenistan--Botany)

FEDCHENKO, B. A.

"New Species of the Figwort from the Turkmen SSR," Bot. mat. Gerb., 14, 1951

FEDCHENKO, B.A.

New species of figwort from Turkmenia. Bot.mat.Gerb. no.16: 335-337 '54. (MLRA 8:9)

(Turkmenistan--Figwort)

FEDCHENKO, F.I.

Some problems of eye injuries in Ichnya District, Chernigov Province for the past five years. Oft.zhur. 11 no.1:17-20 '56. (MLRA 9:9)

1. Iz Ichnyanskoy rayonnoy bol'nitsy (Chernigovskaya oblast')
(ICHNYA DISTRICT--EYE--WOUNDS AND INJURIES)

FEDCHENKO, F.M.

33-4-15/19

AUTHOR: Fedchenko, F. M.

TITLE: Isochronous Pendulum Astronomical Clock AChF-1 (Astronomicheskiye chasy s izokhronizirovannym mayatnikom AЧФ-1.)

PERIODICAL: Astronomicheskiy Zhurnal, 1957, Vol.34, No.4, pp.652-663 (USSR)

ABSTRACT: The pendulum astronomical clocks AChF-1, designed by the author differ from the best existing astronomical clocks (manufactured by the factory "Etalon" or the firm "Synchronom") in the simplicity of their construction and high precision. The mean quadratic variation of their diurnal rate is of the order ±0s.001 per day, i.e. they are 2-3 times more precise than existing first class astronomical clocks. The AChF-1 works without a secondary clock, therefore it is not necessary to synchronize the oscillations of the pendulums. The precision of their rate is reached by using a special triple spring isochronic pendulum suspension and a mechanism which imparts to the pendulum, in its position of equilibrium, short impulses (mechanical or some others). Such a mechanism does not interfere with the isochronism of the oscillations of the pendulum, which is attained by means of the suspension. The principle of

Card 1/2

33-4-15/19

Isochronous Pendulum Astronomical Clock AChF-1

action of the isochronic pendulum suspension and the impulse mechanism with a mechanical impulse is described. The curves of the clock rate for November-December, 1955 and also observations of the variations of the acceleration of gravity with the pendulum clocks are given. The AChF-1 can be used as a time-keeper and also as an instrument for observing the variations of the force of gravity. There are 12 figures and 4 Slavic references.

SUBMITTED: November 1, 1956.

ASSOCIATION: All Union Scientific Research Institute for Physical-Technical and Electronic Metering. (Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Fiziko-Tekhnicheskikh i Radiotekhnicheskikh Izmereniy).

AVAILABLE: Library of Congress

Card 2/2

FεDeHεNKo, E.M.

24(0); 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215

Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleyeva

Referaty nauchno-issledovatel'skikh rabot; sbornik No. 2 (Scientific Research Abstracts; Collection of Articles, Nr 2) Moscow, Standartgiz, 1958. 139 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR. Komitet standartov, mer i izmeritel'nykh priborov.

Ed.: S. V. Reshetina; Tech. Ed.: N. A. Kondrat'yeva.

PURPOSE: These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and gages for the various industries.

COVERAGE: The volume contains 128 reports on standards of measure-
ment and control. The reports were prepared by scientists of
institutes of the Komitet standartov, mer i izmeritel'nykh
priborov pri Sovete Ministrov SSSR (Commission on Standards,
Measures, and Measuring Instruments under the USSR Council of
Ministers). The participating institutes are: VNIIM -
Vsesoyuznyy nauchno-issledovatel'skiy metrologii imeni D.I.
Mendeleyeva (All-Union Scientific Research Institute of Met-
rology imeni D.I. Mendeleyev) in Leningrad; Sverdlovsk branch
of this institute; VNIIK - Vsesoyuznyy nauchno-issledovatel'skiy
institut Komiteta standartov, mer i izmeritel'nykh priborov
(All-Union Scientific Research Institute of the Commission
on Standards, Measures, and Measuring Instruments), created
from MGIMIP - Moskovskiy gosudarstvennyy institut mer i
izmeritel'nykh priborov (Moscow State Institute of Measures
and Measuring Instruments) October 1, 1955; VNIIFTRI -
Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhni-
cheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific
Research Institute of Physicotechnical and Radio-engineering
Measurements) in Moscow; KhGIMIP - Khar'kovskiy gosudarstvennyy
institut mer i izmeritel'nykh priborov (Khar'kov State Institute
of Measures and Measuring Instruments); and NGIMIP - Novosi-
birskiy gosudarstvenyy institut mer i izmeritel'nykh priborov
(Novosibirsk State Institute of Measures and Measuring Instru-
ments). No personalities are mentioned. There are no references.

Card 8/27

FEDCHENKO, F.M.

Isochronization of pendulum oscillations. Trudy VNIIFTRI no.1: 39-47 '58. (MIRA 12:4)
(Clocks and watches--Repairing and adjusting)

MUDRACHENKO, V.Ye., otv. za vypusk; BUNIN, I.N., otv. za vypusk; TAULIN, B.A., otv. za vypusk; FEDCHENKO, F.M., otv. za vypusk

[Timetable for passenger trains (abridged); summer 1962] Raspisanie dvizheniia passazhirskikh poezdov (kratkoe); leto 1962. goda. Moskva, Transzheldorizdat, 1962. 277 p. (MIRA 15:7)
(Railroads—Timetables)

FEDCHENKO, F.M.

Astronomical clocks with electromagnetically induced pendulum swing. Trudy inst. Kom. stand., mer i izm. prib. no.58:92-100 '62. (MIRA 15:11)
(Astronomical clocks)

FEDCHENKO, G.

Finding the position of a ship by simultaneous observation of sun and planets. Mor. flot 22 no.9:25-27 S '62. (MIRA 15:12)

1. Kapitan teplokhoda "Sverdlovsk".
(Nautical astronomy)

FEDCHENKO, G.

Communists are leading. Mor. flot 23 no.9:3-5 S '63. (MIRA 16:11)

1. Kapitan teplokhoda "Sverdlovsk" Chernomorskogo parokhodstva.

G F FEDCHENKO

"Sealing Metal Stems by the 'Cold' Welding Method" from Annotations of Works Completed in 1955 at the State Union Sci. Res. Inst; Min. of Radio Engineering Ind.

So: B-3,080,964

FEDCHENKO, G I

Posobiye Dlya Lebedchika Dnouglubitel'nogo Flota (Reference Book for the Winch Operator of a Dredger Fleet, by) G.I. Fedchenko. Moskva, Morskoy Transport, 1950.
144 p. Illus.
Cataloged from Abstract.

Elementary Information Pertinent to Nautical Transportation, Approching Channels, Winch Operator's Work, Special Equipment, Emergency Mechanisms, as well as Organization and Production.

N/5
741.51
.L9

ACCESSION NR: AR3010383 S/0081/63/000/015/0142/0143

SOURCE: RZh. Khimiya, Abs. 15G201

AUTHOR: Dement'yeva, M. I.; Fedchenko, G. S.; Mal'tinskaya, S. Sh.

TITLE: Analysis of paraffinic, cycloparaffinic, and aromatic hydrocarbons k C_6--C_8

CITED SOURCE: Sb. Metody* issled. produktov neftepererabotki i neftekhim. sinteza. L., Gostoptekhizdat, 1962, 162-169

TOPIC TAGS: Parffin, hydrocarbon, cycloparaffin, aromatic hydrocarbon, gas chromatography, liquid chromatography, chromatographic analysis

TRANSLATION: Techniques were developed for analyzing mixtures of paraffinic (PHC) cycloparaffinic (CHC) and aromatic (AHC) C_5--C_8 by using gas-liquid chromatography, and the influence of the quantity of the stationary phase and length of the column on the efficiency of the separation was investigated. The C_4--C_7 PHC are analyzed chromatographically at 55° in a two-section column (200.0 + 400.0 x 0.4 cm) filled with triethylene glycol α-butyrate on diatomaceous brick (3:10 and 2:10, respectively). at a flow rate of the developer gas He or H_2 of 20 ml/min.

Card 1/2

ACCESSION NR: AR3010383

The mixture of PHC, CHC, C_6H_6 and $C_6H_5CH_3$ is analyzed at 65°, and the mixture of AHC at 115° in a column (400.0 x 0.4 cm) filled with the ester of pentaerythritol monochlorohydrin and valeric acid on brick (5:100), at a flow rate of the developer gas He or H_2 of 40 ml/min. The method is used for the analysis of industrial products of catalytic reforming, isomerization, demethylation, and extraction of AHC. The retention times of 21 hydrocarbons are given. B. Kolokolov

DATE ACQ: 23Sep63 SUB CODE: CH ENCL: 00

Card 2/2

ALEKSANDROV, A.N.; DEMENT'YEVA, M.I.; FEDCHENKO, G.S.; SKOP. S.L.; TYSOVSKIY, G.I.

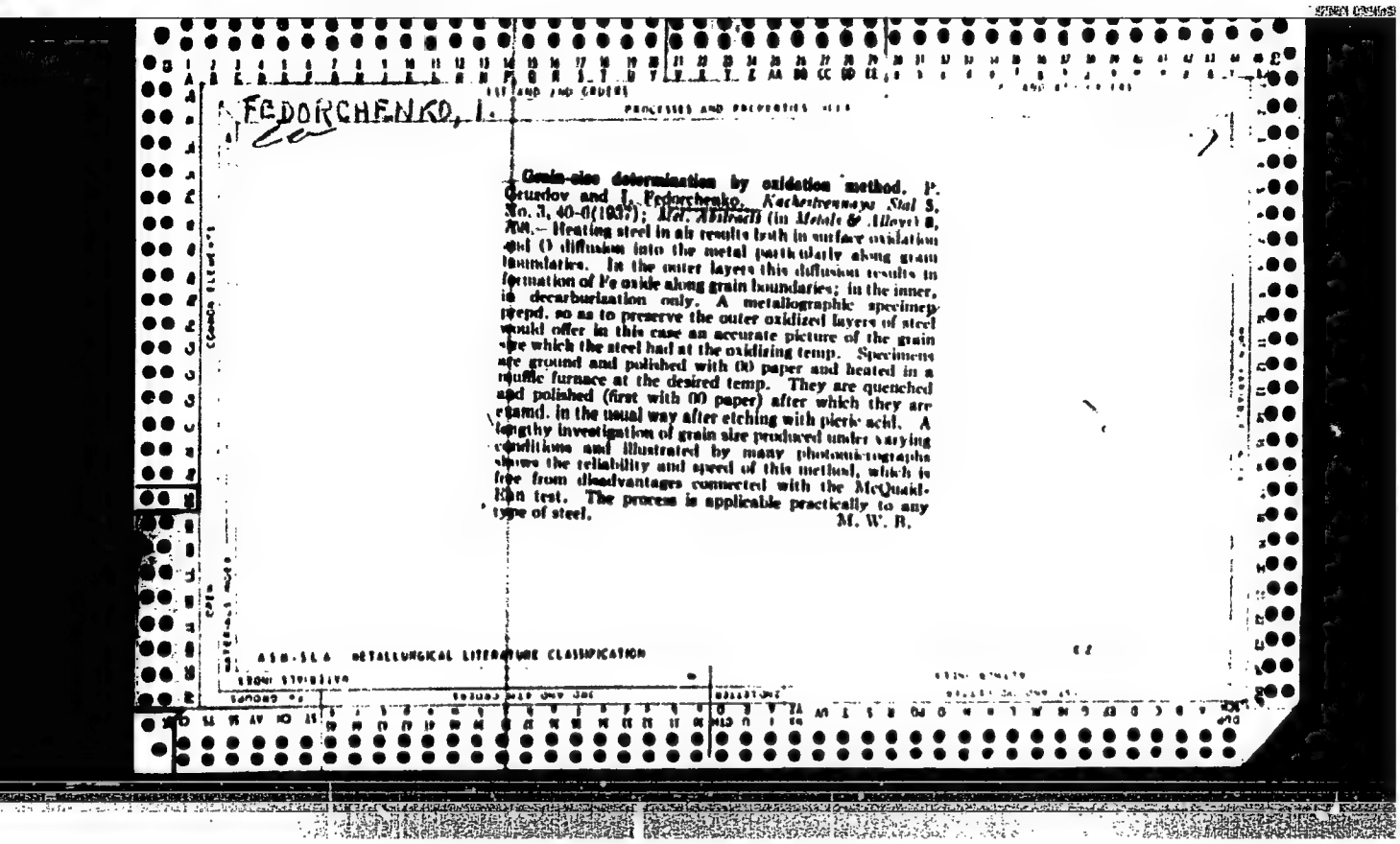
Analyzing vinyltoluene by mass-spectometry and gas-liquid chromatography. Khim. i tekh. topl. i masel 9 no.6:64-67 Je '64 (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

FEDCHENKO, I.K., doktor tekhn.nauk, prof.; KONDRA, P.N., kand.tekhn.nauk

Modeling of overhead power transmission lines in the study of pulse corona. Izv.vys.uchob.zav.; energ. 8 no.9:124-129 S '65. (MIRA 18:10)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.

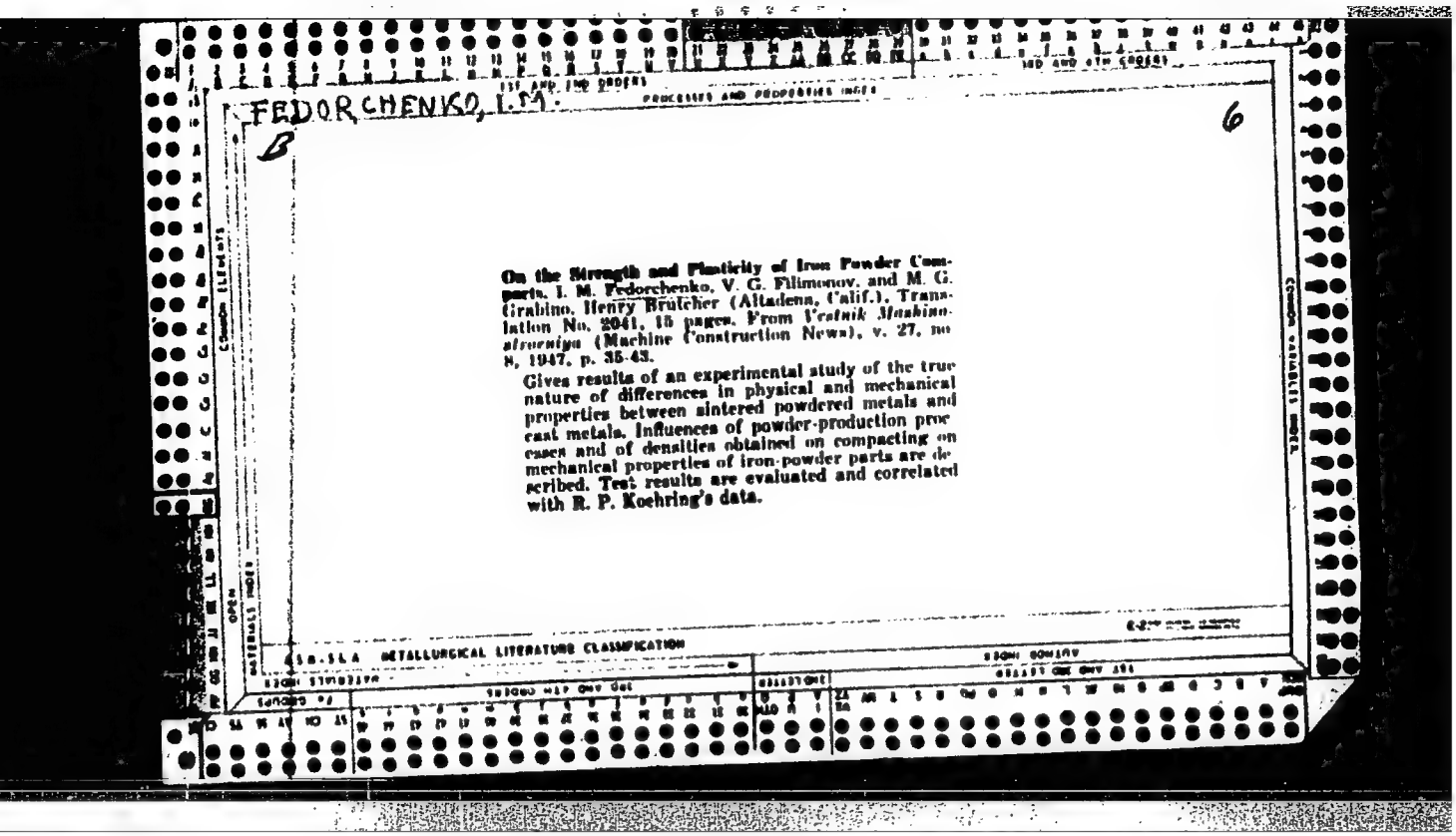


FEDORCHENKO, I.

Grain-size determination by oxidation method. P. Gruzdov and I. Fedorchenko. *Kachestvennaya Stal* 3, No. 3, 40-6(1933); *Met. Abstracts* (in *Metals & Alloys* 8, A40.— Heating steel in air results both in surface oxidation and O diffusion into the metal particularly along grain boundaries. In the outer layers this diffusion results in formation of Fe oxide along grain boundaries; in the inner, is decarburization only. A metallographic specimen is prepd. so as to preserve the outer oxidized layers of steel which offer in this case an accurate picture of the grain size which the steel had at the oxidizing temp. Specimens are ground and polished with 00 paper and heated in a muffle furnace at the desired temp. They are quenched and polished (first with 00 paper) after which they are etched in the usual way after etching with picric acid. A lengthy investigation of grain size produced under varying conditions and illustrated by many photomicrographs shows the reliability and speed of this method, which is free from disadvantages connected with the McQuaid-Ehn test. The process is applicable practically to any type of steel.

M. W. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



FEDORCHENKO, I.M.

B

6

On the Strength and Plasticity of Iron Powder Compacts. I. M. Fedorchenko, V. G. Filimonov, and M. G. Girabino. Henry Brutcher (Altadena, Calif.). Translation No. 2041, 15 pages. From *Vestnik Mashinostroyeniya* (Machine Construction News), v. 27, no 8, 1947, p. 35-43.

Gives results of an experimental study of the true nature of differences in physical and mechanical properties between sintered powdered metals and cast metals. Influences of powder-production processes and of densities obtained on compacting on mechanical properties of iron-powder parts are described. Test results are evaluated and correlated with R. P. Koehring's data.

FEDORCHENKO, I. M.

I. M. Fedorchenko. The intercrystalline substance and the structure of the grain boundaries in metals. P. 196

June 27, 1949

SO: Journal of Technical Physics, 21, No. 2 (Feb. 1951)

FEDOROVSKIY, I. M.

Dr. Technical Sci.

"Regularities of the Process of Sintering of Conglomerates Out of Metallic Powders." Sub 23 Oct 51, Inst of Metallurgy imeni A. A. Baykov, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

CA FEDORCHENKO, I. M.

2

Specific surface area of metal powders. I. M. Fedorchenko (Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1951, 411–18.—Sp. surface areas *S* were detd., on Fe, Cu, and Ni powders of different preps. (I cyclone sepn., II reduction, III electrolytic, IV carbonyl decompn.), by measurements of the rate of flow *Q*, in moles of gas of mol. wt. *M* flowing per sec. through 1 sq. cm. of a layer of powder of thickness *dx* under a pressure gradient *dp/dx*, with the use of Deryagin's formula (*C.A.* 44, 1W) $S = (24/13)\times\sqrt{2\pi}\times\theta/Q\times1/\sqrt{MRT}\times(dp/dx)$, where θ = vol. of pores per unit vol. This equation is applicable to the range of Knudsen flow, which is practically reached at pressures below 0.3 mm. Hg. For powders of corundum and ZnO, the method gave values of *S* practically identical with those obtained by adsorption of N_2. The max. relative error for the metal powders does not exceed 3%. The following values of *S* were detd. with powders of grain size less than 0.06 mm.: Fe I, unannealed 0.131, annealed at 900°, 0.057, annealed at 1200°, 0.046 sq. m./g.; Fe II (reduced at 1100°) 0.040; unannealed Fe III 0.148; Cu I 0.042; Cu III 0.096; Ni I 0.082; Ni IV 0.151. A limitation of the method is that it permits detn. only of the surface area of through pores, and that dead-end pores remain unnoticed; this error has a significance only for prepns. II, not for powders prepd. by the other methods. The relation between *S* and the mean grain diam. *d*, from detns. on various fractions from less than 0.06 to more than 0.385 mm., is of the form $S = Ad^{-B}$ for Fe I unannealed, Fe I annealed at 875°, and Ni I unannealed, with A = 0.206, 0.130, and 0.123, resp., and B = 11.78, 10.66, and 12.80, resp. However, for Cu I, the relation is of the form $S = Ad^{-B}$, with A = 0.00044, B = 1.304. This difference is evidently linked with the greater viscosity of Cu, as a result of which grinding produces grains of a shape different from that of Fe and Ni; the latter appear under the microscope as irregular polyhedrons, in contrast to the nearly spherical grains of Cu. These formulas do not apply to grains larger than 0.385 mm. for which the calcd. *S* are lower than the exptl. *S* by factors of 8–10. The decrease of *S* as a result of annealing is more pronounced with finer powder; with Fe I of mean grain d = 0.04 it is 31.6%, but is practically nonexistent with grains of mean d = 0.34 mm. The "ideal" S_i, defined as the *S* of ideally smooth spherical grains of a diam. equal to the mean *d* of the real powder, is given, for a metal of sp. wt. γ, by $S_i = 5.96 \times 10^{-3}/\gamma d$; the curves of *S* of the real powders of Fe and Ni, plotted as a function of *d*, come close to the ideal S_i curve at lowest and at highest *d*, i.e. for the finest and for the coarsest powders, whereas the curve of Cu is close to the ideal curve over the whole range of *d*. The roughness factor, defined as S/S_i, passes through a max. at about d = 0.1 mm. for Fe and Ni, but decreases monotonously with increasing *d* for Cu.

N. Thon

1957 Inst. Metallurgy im. Baykov, AS USSR

USSR/Metals - Power Metallurgy, Processes Apr 52

"Heats of Activation of the Surface Self-Diffusion Process in Metals," I. M. Fedorchenko

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 4, pp 560-571

Develops method for detg coeff of surface self-diffusion by results of measuring specific surface of powders after annealing. Calculates apparent activation heats of surface self-diffusion for powders of several metals and actual heats of activation for iron powder. Establishes qual relation between values of activation heats and characteristics of sintering capacity of metal powders,

219T46

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Estimates thickness of surface layer in which migration of atoms occurs during surface self-diffusion which results in modification of specific surface.

(CA 47 no.14:6842 '53)

219T46

FEDORCHENKO, I.M

FEDORCHENKO, I. M.

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Metallurgy and Metallography

(2) hot

The laws of the process of setting metalloceramic briquets in sintering. I. M. Fedorchenko. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1953, 393–406; cf. *C.A.* 47, 6842*i*.—Examn. of the sintering process in briquets made of powd. metals (Fe, Cu, and Ni) reveals that the setting process may be the result of removal of atoms from the peaks of the rough areas into the near-lying low areas and pores. The setting of such blocks is the result of at. diffusion which agrees in part with Frenel's theory of surface mechanism of sintering (Frenkel, *C.A.* 40, 5014[9]). The activation energies of the setting process and the diffusion constants were calcd. For Cu the activation energy is 34,070–35,120 cal./g. atom, for Fe it is 16,000–20,360 cal./g. atom in the 600–900° interval. The index of the no. of atoms capable of translation upon application of activation energy is variable with time and is given by: $A_{Fe} = 0.1038t^{-0.557}$; $A_{Cu} = 340t^{-0.705}$; $A_{Ni} = 0.0315t^{-1.18}$, with t in min.

G. M. Kosolapoff

FEDORCHENKO, I.M.

Recrystallization due to heating in sintered powdered metal samples following cold deformation. Vop. por. met. i prochn. mat. no.1:5-12 '54. (MLRA 7:12)
(Powder metallurgy)

FEDORCHENKO, I.M.

Recrystallization temperature and grain growth in sintering powdered metals. Vop.por.met. i prochn.mat. no.1:13-26 '54. (MLRA 7:12)
(Powder metallurgy)

FEDORCHENKO, I.M.

Crystallization patterns in powdered-metal sintering. Vop. por.met. i prochn. mat. no.1:27-32 '54. (MLRA 7:12)
(Powder metallurgy)

FEDORCHENKO, I.M.

FRANTSEVICH, Ivan Nikitich; CHERNOVOL, Vasiliy Semenovich; GERENROT, Iosif Samoylovich; PILIPENKO, Nina Alekseyevna; YAGUPOL'SKAYA, Lidiya Naumovna; ZIL'BAN, M.S., redaktor; FEDORCHENKO, I.M., doktor tekhnicheskikh nauk, redaktor; RAKHLINA, N.P., tekhnicheskiy redaktor

[Over-all electric controlling of corrosion in the Dashava - Kiev gas pipe line] Kompleksnaia elektrozashchita gazoprovoda Dashava - Kiev ot korrozii. Kiev, Izd-vo Akademii nauk USSR, 1955. 30 p. (MLRA 9:3)
(Corrosion and anticorrosives) (Gas, Natural--Pipelines)

FEDORCHENKO, I.M. FILATOVA, N.A. SEREDA, N.N.

"The Comparative Investigation of the Properties of Iron Powders",from the monograph Questions on Power Metallurgy and the Strength of Materials, No III, Institute of Metalloceramics and Special Alloys, Academy of Sciences Ukrainian SSR, Kiev, 1956, 145 pages

Sum. 1287

SOV/137-57-10-19006

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 81 (USSR)

AUTHORS: Frantsevich, I.N., ~~Fedorchenko, I.M.,~~ Radomysel'skiy, I.D., Barabash, M.L., Ol'shanskiy, M.A., Nichiporenko, O.S.

TITLE: Wear-resistant Iron Powder Contact Inserts for Trolleybuses (Iznosostoykiye metallokeramicheskiye zheleznyye tokopriyemnyye vstavki dlya trolleybusov)

PERIODICAL: V sb.: Povysheniye iznosostoykosti i sroka sluzhby mashin. Kiyev - Moscow, Mashgiz, 1956, pp 304-312

ABSTRACT: A description is presented of iron-and-graphite cermet contact inserts (ICI) for trolleybuses. The ICI are made from a mixture of Fe and graphite (G) powders compacted cold and then sintered in a shielding or inert atmosphere. The G acts as lubricant between the rubbing surfaces of the ICI and the contact wire. The ICI operate at current densities of up to 60 amps/cm^2, 500 v potential, and a pressure of 2-3 kg/cm^2. It is pointed out that ICI undergoes less wear than does a copper-and-graphite substance, but that the trolley contact wires are exposed to greater wear. It is found that the G content has a pronounced effect on the wear resistance of the ICI.

Card 1/2

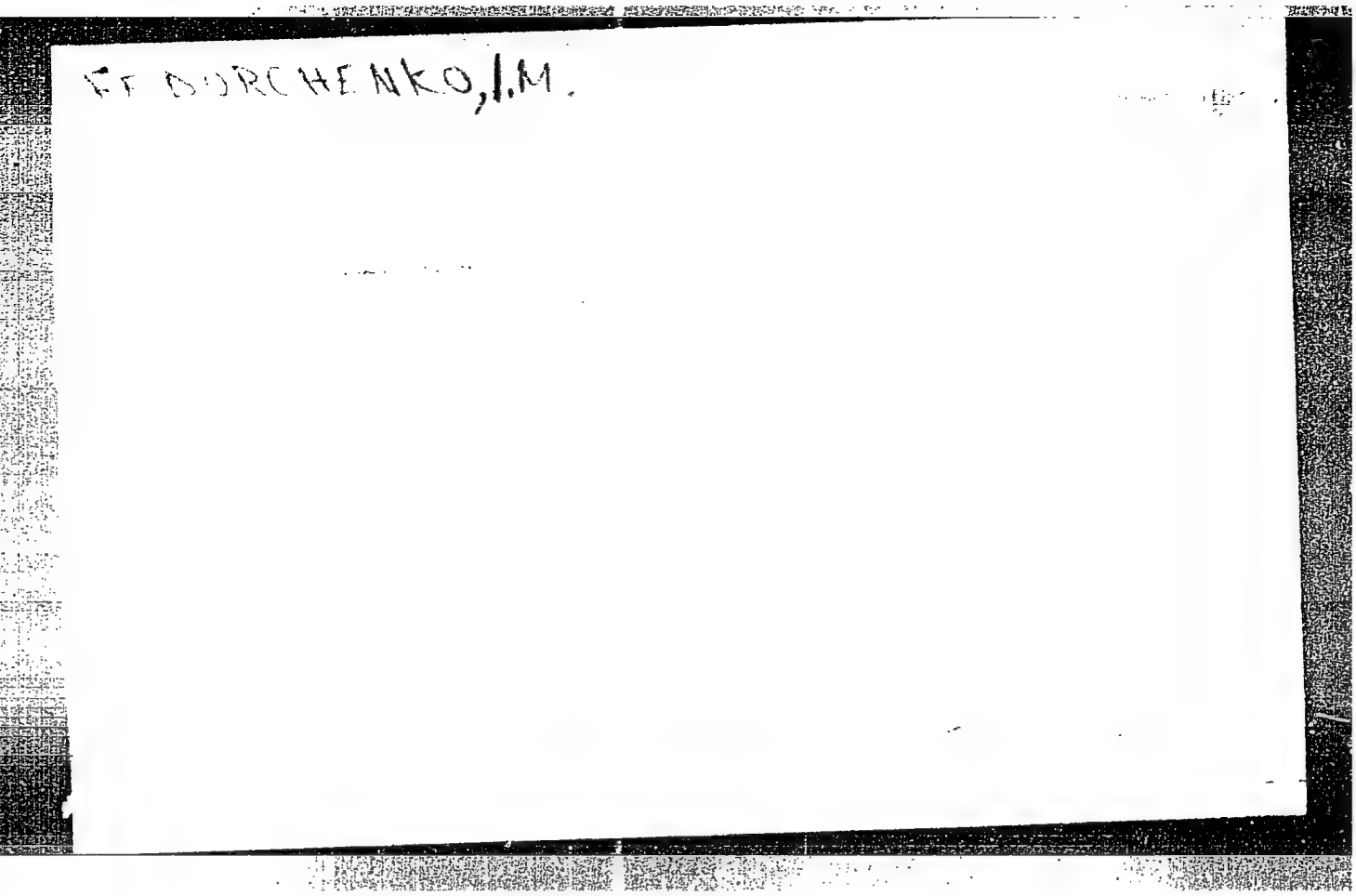
SOV/137-57-10-19006

Wear-resistant Iron Powder Contact Inserts for Trolleybuses

Minimum wear is shown by IC1 when the cermet contains 8% G. There is a sharp drop in ultimate strength (by more than half) as G content rises from 2 to 8%. After sintering at 870°C the structure of the material consists of ferrite and G. Sintering at 950° causes a harder pearlite to form. As a result of the investigation, a material was adopted consisting of Fe powder derived from reduction of scale as a base, with the addition of 5.6 and 8% G. 2% Cu is added to some compositions. Sintering is run for 4 hours at 920 and 950°. The porosity of the IC1 is 9-15%. The work of the Kiyev trolley-bus system showed the use of IC1 to be entirely satisfactory. The life of IC1 is 2.36 times as great as that of copper-and-graphite inserts, and its cost is 63 percent lower. The Kiyev Street Railway Plant im. F. E. Dzerzhinskiy has developed the process of manufacturing IC1, with sintering in boxes.

S.Ts.

Card 2/2



Fedorchenko, I.M.

E-6

USSR / Diffusion. Sintering.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9344

Author : Fedorchenko, I.M.
Title : Factors that Disturb Normal Shrinkage in the Sintering of Powdered Metals.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 9, 2067-2075

Abstract : The presence of oxide films on the surface of grains of metal powder can prevent the shrinkage of compressed specimens (briquettes) and cause them to grow, and sometimes, to the contrary, may lead to an increase in the shrinkage. The main reason for the growth of briquettes at sintering temperatures: below the crystallization is the removal of the residual internal stresses, and above it -- the expanding action of the liberated gases. In briquettes made of iron powder it was observed that the phase transition at the point Ac_3 exerts a negative action on the shrinkage, and this action manifests itself more pronouncedly at high briquette density.

Card : 1/1

YEREMENKO, Valentin Nikiforovich [IEREMENKO, V.N.]; MAYDICH, Yuriy Vladimirovich [Maidych, IU.V.]; FEDORCHENKO, I.M., red.; SHTUL'MAN, I.F., red.izd-va; RAKHLINA, N.P., tekhn.red.

[Using liquid metals in coating heat-resistant compounds] Zmochuvannia ridkymy metalamy poverkhon' tuhoplavkykh spoluk. Kyiv, Vyd-vo Akad.nauk URSR, 1958. 59 p. (MIRA 12:4)

1. Chlen-korrespondent AN USSR (for Fedorchenko).
(Heat resistant alloys) (Refractory materials)

SOV/137-58-10-20804

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 65 (USSR)

AUTHOR: Fedorchenko, I.M.

TITLE: Iron Powders and Areas of Application Thereof (Zheleznyye poroshki i oblasti ikh primeneniya)

PERIODICAL: V sb.: Vopr. poroshk. metallurgii i prochnosti materialov. Nr 5. Kiyev, AN UkrSSR, 1958, pp 104-116

ABSTRACT: A detailed analysis is presented of the work of the Institute of Metal Ceramics (Powder Metallurgy) and Special Alloys, Academy of Sciences, Ukrainian Soviet Socialist Republic, devoted to development of a procedure for production of reduced Fe powder, investigation of its properties, and utilization thereof in industry. Reduced Fe powder finds the most varied application in national economy. It is employed in the production of antifriction products and current-receiving trolley shoes for trolleybuses, in oxygen cutting with flux, in magnetic defectology, in the chemical industry, etc.

R.A.

1. Iron powders--Applications 2. Iron powders--Production
3. Iron powders--Economic aspects

Card 1/1

21-58-5-16/28

AUTHORS: Andriyevskiy, R.A., and Fedorchenko, I.N., Member Correspondent of the AS UkrSSR

TITLE: On the Presence of Plastic Deformation in the Shrinkage of Sintered Silver Powder Bodies (O nalichii plasticheskoy deformatsii pri spekanii poristykh tel iz serebra)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 5, pp 531-534 (USSR)

ABSTRACT: There are three possible mechanisms of shrinkage in sintering metal powders: surface migration, spatial diffusion creep, and plastic deformation. In order to clarify the role of plastic deformation, the authors investigated the effect of uniaxial strains on the shrinkage kinetics, especially during the first stages of sintering. Silver powder was selected for the experiments. The temperature of sintering was 900°C. The dependence of linear and volume shrinkage on the stress applied was found to be non-linear, a phenomenon which is interpreted as an evidence of plastic deformation manifested during the application of a load to the sintered body. On the basis of these data, a conclusion has been drawn that

Card 1/2

On the Presence of Plastic Deformation in the Shrinkage of Sintered Silver Powder Bodies

plastic flow is absent under conditions of "free" sintering of metal-ceramic bodies.
There are 4 graphs and 7 references, 3 of which are Soviet, 1 German, 2 American and 1 English.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN UkrSSR (Institute of Metallo-Ceramics and Special Alloys of the AS UkrSSR)

SUBMITTED: January 22, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration

1. Powders--Sintering

RAYCHENKO, A.I.; FEDORCHENKO, I.M.

Homogenization during the sintering of powder metals with unlimited mutual solubility. Vop.por.met.i prochn.mat. no.6:3-18 '58. (MIRA 13:4)
(Powder metallurgy) (Solutions, Solid)

ANDRIYEVSKIY, R.A.; FEDORCHENKO, I.M.

Kinetics of property changes during the isothermic sintering of iron powders. Vop.por.met.i prochn.mat. no.6:19-28 '58. (MIRA 13:4)

(Powder metallurgy)

SOV-21-58-8-8/27

AUTHORS: Raychenko, A.I. and Fedorchenko, I.M., Member-Correspondent of the AS UkrSSR

TITLE: On the Problem of Intrinsic Induction of Two-Component Metalloceramic Alloys (K voprosu o vnutrenney induktsii dvukhkomponentnykh metallokeramicheskikh splavov)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 8, pp 835-837 (USSR)

ABSTRACT: In previous works no attempts to estimate quantitatively the intrinsic saturation induction $B_s = 4\pi I_s$ of two-component metalloceramic alloys (I_s is magnetization of saturation) have been made. However, the knowledge of concentration distribution of an alloy makes it possible to estimate quantitatively any additive property, provided that the dependence of this property on concentration is known. The authors propose a method for estimating the intrinsic saturation induction of metalloceramic alloys made of metals with complete mutual solubility. The calculation may be carried out for an alloy of arbitrary average concentration for any degree of sintering. The dis-

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On the Problem of Intrinsic Induction of Two-Component Metalloceramic Alloys

tribution by concentrations for the given degree of sintering (Ref. 1) and the dependence of the induction on the concentration (Ref. 2) are employed in this calculation. Results of experimental investigations confirm that the theoretical estimates are reasonable. This method of calculation can be applied to any additive property. There are 2 graphs and 3 references, 2 of which are Soviet and 1 German.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN UkrSSR (Institute of Metalloceramics and Special Alloys of the AS UkrSSR)

SUBMITTED: April 2, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Ceramic materials--Theory 2. Ceramic materials--Induction heating
3. Mathematics--Applications

FEDORCHENKO, I.M.

General results of academic activities of the Academy of Sciences of the Ukrainian S.S.R. in 1957 and tasks for 1958. Visnyk AN URSR 29 no. 5:18-38 My '58. (MIRA 11:7)

1. Chlen-korrespondent AN URSR, Golovnii uchenii sekretar Prezidii AN URSR.
(Academy of Sciences of the Ukrainian S.S.R.)

FEDORCHENKO, I.M.
P.2

PHASE I BOOK EXPLOITATION SOV/3624

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov

Metallokeramicheskiye materialy i metody ikh issledovaniya; informatsionnyye materialy (Cermet Materials and Methods of Their Analysis; Information Material) Kiyev, Izd-vo AN UkrSSR, 1959. 55 p. 1,500 copies printed.

Ed. of Publishing House: I.V. Kisina; Tech. Ed.: A.M. Lisovets
Editorial Board: I.N. Frantsevich, I.M. Fedorchenko, G.S. Pisarenko, G.V. Samsonov (Resp. Ed.), V.N. Yeremenko, and V.N. Paderno.

PURPOSE: This collection of articles is intended for scientific workers, designers, and engineering and technical workers in the metallurgical, machinery-manufacturing and other branches of industry.

COVERAGE: In this collection of articles the authors describe the production of carbides, nitrides and other heat resisting compounds, giving their physicochemical and mechanical properties. Their thermal processing and the processing installations are

Card 1/4

Cermet Materials (Cont.)

also described. A new method is proposed for the production of rods from refractory compounds. Certain compounds are analyzed, and the energy dissipation in materials during high-frequency mechanical vibrations is determined. No personalities are mentioned. There are 7 schematic drawings, 7 diagrams, 6 tables and 17 references, 16 of which are Soviet.

TABLE OF CONTENTS:

FEDORCHENKO, I.M.

18(7) PHASE I BOOK EXPLOITATION SOV/3355

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. IV (Studies on Heat-resistant Alloys, vol. 4). Moscow, Izd-vo AN SSSR, 1959. 400 p. Errata slip inserted. 2,200 copies printed.

Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Guseva; Editorial Board: I. P. Bardin, Academician; G. V. Kurdyumov, Academician; N. V. Ageyev, Corresponding Member, USSR Academy of Sciences; I. A. Oding, I. M. Pavlov, and I. F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with the structural metallurgy of alloys.

COVERAGE: This is a collection of specialized studies of various problems in the structural metallurgy of heat-resistant alloys. Some are concerned with theoretical principles, some with descriptions of new equipment and methods, others with properties of specific materials. Various phenomena occurring under specified conditions are studied and reported on. For details, see Table of Contents. The articles are accompanied by a number of references, both Soviet and non-Soviet.

SOV/3355

Studies (Cont.) SOV/3355

Card 11/12

SOV/21-59-3-12/27

AUTHORS: Fedorchenko, I.M., Corresponding Member of the AS UkrSSR, and Andriyevskiy, R.A.

TITLE: On the Effect of Compressive Stresses Upon Shrinkage in the Sintering of Porous Bodies (O vliyanii szhimayushchikh napryazheniy na usadku pri spekanii poristykh tel)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 3, pp 281-283 (USSR)

ABSTRACT: In this article the authors report on their experiments in the study of the effect of uneven compressive stresses on the volumetric shrinkage of sintered bodies consisting of silver, copper and nickel powders (pressure 110-120 kg/cm^2, temperature 600-800°C, time 5 minutes). Experiments were performed outdoors, yet the degree of oxidation was negligible because of the burning of graphite in the graphite press forms. Figure 1 shows the influence of compressive stresses ( ) upon the volumetric shrinkage $\frac{\Delta v}{v}$ at sintering. The dependence of the

Card 1/2

On the Effect of Compressive Stresses Upon Shrinkage in the Sintering of Porous Bodies

shrinkage on the stress, allowing for the geometrical factor, proved to be nonlinear in the case of annealed powders, which is due to a plastic deformation arising on application of the load to the sintered body. Upon attaining a porosity 13-14%, the deformation speed slows down. The inference is, that under conditions of "free" sintering, the processes occurring are not plastic strain processes, but diffusion processes. There are 4 graphs, 1 table and 10 references, 5 of which are Soviet, 5 English.

ASSOCIATION: Institut metalokeramiki i spetsialnykh splavov AN UkrSSR (Institute of Metaloceramics and Special Alloys of the AS UkrSSR)

PRESENTED: December 10, 1958

FEDORCHENKO, I.M.; FILATOVA, E.A.

Investigating the effect of technological factors on the pressability of iron powders. Vop. por. met. i prochn. mat. no. 4:105-119 '59. (MIRA 14:2)
(Powder metallurgy)

SOV/21-59-4-11/27

18(5)

AUTHORS: Andriyevskiy, R.A. and [illegible]enko, I.M., Corresponding Member of the AS UkrSSR

TITLE: Comparative Examinations of Various Methods of Activated Sintering of Reduced Iron

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 4, pp 392-395 (USSR)

ABSTRACT: This is an account of the results of the studies conducted by the authors of the changes in magnetic properties of iron porous bodies subjected to two hours of sintering at 1200°C, under various conditions, such as : sintering in dry hydrogen (0.022% H_2O); sintering in damp hydrogen (2% H_2O); sintering in 10% H_2O; sintering of oxidized briquettes (1% O_2); cyclic sintering; sintering in an atmosphere H_2 +HCl;

Card 1/2

Comparative Examinations of Various Methods of Activated Sintering of Reduced Iron

sintering in a charge of Al_2O_3 + 1% NH_4Cl; sintering of oxidized specimens in an atmosphere of H_2 + HCl; sintering in a charge of Al_2O_3 + 0.1% NH_4F. Heating and cooling were made in dry hydrogen. The table on page 392 shows the results of measurements of specific surface of open pores S and of changes in the chemical composition of sintered specimens. The best results were obtained when sintered in atmospheres supplemented with HCl, which, in the authors' opinion, is accounted for by intensive spheroidization of pores and partly by refining of chemical composition. There are 1 table, 1 set of graphs and 11 references, 5 of which are Soviet, 1 Japanese, 2 American and 3 unidentified.

Card 2/3

Inst. Metal Ceramics & Special Alloys
AS UkrSSR

S/137/62/000/006/073/163
A052/A101

AUTHORS: Fedorchenko, I. M., Filatova, N. A.

TITLE: Investigation of the effect of technological factors on the pressability of iron powders

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 33, abstract 60253 ("Vopr. poroshk. metallurgii i prochnosti materialov". (In collection: Kiyev, AN UkrSSR, no. 7, 1959, 105 - 119)

TEXT: The effect of the following technological factors on the pressability of iron powder was studied: methods of prepration and of the sieve analysis of the powder, temperature conditions of the preliminary processing of the powder, annealing atmosphere of the powder, the state of the working surface of the die, burnishing operations of the investigated powders. The porosity of the samples was determined depending on the change in the listed technological factors and the working pressure (1 - 10 t/cm^2). It is shown that for a fine reduced (by converted gas or hard carbon) and a coarse vortex powder, the working pressure is lower (to produce an equal density) than for a coarse reduced, fine electrolytic

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S/137/62/000/006/073/163
A052/A101

Investigation of the...

and vortex powder. A preliminary annealing of a vortex and electrolytic powder leads to the removal of cold hardening and to an improved pressability; optimum annealing conditions: temperature 750 - 800°C, 2 hours, shielding atmosphere. The state of the working surface of the die affects essentially the pressability of powders. Minimum pressure is required when pressing powders in dies with a brilliant-polished surface and using lubrication. Electrolytic chromium plating of the die surface, while increasing its life, leads to an increased working pressure. The burnishing of a reduced powder changes the bulk weight, sieve composition, the form of particles and, consequently, the pressability of the powder. Depending on its technology (with or without balls, different time) burnishing can both increase and decrease (due to cold hardening) the pressability of powders. In the latter case a subsequent annealing of the powder is necessary. There are 9 references.

A. Epik

[Abstracter's note: Complete translation]

Card 2/2

SOV/21-59-7-14/25

9(3), 18(7)

AUTHOR: Skorokhod, V.V. and Fedorchenko, I.M., Corresponding Member of the AS UkrSSR

TITLE: On the Conductivity of Disperse Mixtures with Imperfect Contacts Between the Particles

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi, 1959, Nr 7, pp 756-759 (UkrSSR)

ABSTRACT: A method for calculating the conductivity of disperse statistical mixtures with imperfect contacts between the particles is proposed in this article. The method is based on the theory of electrical contacts (R.Holm /3/) and an analogy existing between contact resistance and poor conductive film resistance. The method is applicable to the mixtures of any concentration and any number of phases. The conductivity of pressed one-component bodies was calculated by this method, applying experimental data on porosity and pressure of pressing. The results of experimental measurements of conductivity show satisfactory agreement

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On the Conductivity of Disperse Mixtures with Imperfect Contacts Between the Particles

with the calculated ones. There are 11 mathematic formulas, 1 diagram and 5 references, 4 of which are Soviet and 1 German

ASSOCIATION: Instytut metalokeramiky i spetssplaviv AN URSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

SUBMITTED: January 30, 1959

L-DORCHENKO, I.M.

PHASE I BOOK EXPLOITATION SOV/5789

Nauchno-tekhnicheskaya konferentsiya po razvitiyu proizvoditel'nykh sil Kiyevskogo ekonomicheskogo rayona

Goryachaya obrabotka metallov; trudy konferentsii. vyp. 2. (Hot Working of Metals; Transactions of the Scientific Technological Conference on the Development of the Productive Forces of the Kiyev Economic Region. no. 2) Kiyev, Izd-vo AN UkrSSR, 1960. 142 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Sovet po izucheniyu proizvoditel'nykh sil UkrSSR. Institut liteynogo proizvodstva. Sovet narodnogo khozyaystva Kiyevskogo ekonomicheskogo rayona. Tekhniko-ekonomicheskiy sovet.

Editorial Board: Resp. Ed.: A.A. Gorshkov, Corresponding Member, Academy of Sciences UkrSSR, B.B. Tsizin, Engineer, and F.A. Novikov, Engineer; Ed. of Publishing House: T.K. Remennik; Tech. Ed.: O.A. Kadashevich.

PURPOSE: This collection of articles is intended for technical personnel in machine plants and planning organizations, scientific workers, and teachers in technical schools of higher education.

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COVERAGE: The book is devoted to problems of the introduction of advanced technology and processing in founding and pressworking. Problems in powder metallurgy are also analyzed. No personalities are mentioned. References accompany some of the articles. There are 56 references, mostly Soviet.

TABLE OF CONTENTS:

Hot Working of Metals (Cont.) SOV/5789

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ARTAMONOV, A.Ya. [Artamonov, O.IA.]; FEDORCHENKO, I.M.

Effect of sintering temperature on the shape of pores in antifriction powder metal materials. Dop.AN URSR no.1: 44-47 '60. (MIRA 13:6)

1. Institut metallokeramiki i spetssplavov AN USSR. 2. Chlen-korrespondent AN USSR (for Fedorchenko).
(Sintering) (Porosity)

S/137/62/000/004/037/201
A006/A101

AUTHOR: Fedorchenko, I. M.

TITLE: The use of cermet materials in engineering

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 39, abstract 4G252 (V sb. "Poroshkovaya obrabotka metallov, no. 2", Kiyev, AN UkrSSR, 1960, 34 - 42)

TEXT: Basic types of cermet articles and materials are analyzed and the technical and economical expediency of their use in various branches of engineering is demonstrated by a number of examples. Information is given on industrial amounts and basic areas of consumption of cermet powders and articles in the USA, FGR, Austria, PPR and CSR. The author points to the favorable conditions of developing powder metallurgy in the Ukraine.

A. Epik

[Abstracter's note: Complete translation]

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ANDRIYEVSKIY, R.A., FEDORCHENKO, I.M.

Sintering of iron with cyclical temperature changes in the critical point range. Inzh.-fiz.zhur. no.2:71-73 F '60.
(MIRA 13:7)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR, Kiyev.
(Iron--Magnetic properties)

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18.6200 2308, 2608 only

S/021/60/000/006/010/019
A153/A029

AUTHOR: Fedorchenko, I.M., Corresponding Member of the AS UkrSSR

TITLE: On the Effect of Heterodiffusion in the Surface Layers of Particles on Shrinkage During Sintering

PERIODICAL: Dopovidi Akademiyi nauk Ukrayins'koyi RSR, 1960, Nr. 6, pp. 784 - 787

TEXT: The author reports the results of a study of changes in the specific surface of powders and the pycnometric density of particle bodies depending on the annealing temperature. Also the shrinkage of briquets was investigated for cases of mutual diffusion processes in the surface layers of contiguous particles of heterogeneous metals. Pure iron powders having the specific gravity 7.85 g/cm^3, and cobalt powders with 8.90 g/cm^3 were investigated, as well as two powdered mixtures, one containing 63% of Co, 5% of Ni, 27% of Cr and 5% of Mo (specific gravity 8.40 g/cm^3), the other containing 5% of Fe, 20% of Co, 60% of Ni, and 15% of Cr (specific gravity 8.53 g/cm^3) (Table 1). Iron, cobalt and nickel powders were prepared by means of a regeneration of oxides with hydrogen during 5 hours at 700°C. Molybdenum oxides were regenerated at 950°C. The investigation established (Table 2) that the increase in the pycnometric density of powders of iron,

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On the Effect of Heterodiffusion in the Surface Layers of Particles on Shrinkage During Sintering

cobalt and complex mixtures on annealing at up to 1,100°C varied within 0.57 - 2.14%, whereas the shrinkage of briquets from these powders on sintering under identical conditions was as high as 30%. A sharp decrease in shrinkage was found in the case of sintering mixtures of heterogeneous powders, when mutual diffusion occurs in the surface layers of the particles. It is stated that shrinkage of briquets cannot be explained by the compression of the body of each separate particle or by a diffusive creep within the particle. Under the conditions of this study, shrinkage resulted from diffusive creep in the surface layers of particles. Table 3 shows data on porosity and shrinkage of briquets made from annealed and nonannealed powders. There are 4 tables and 4 references: 3 Soviet, 1 English.

ASSOCIATION: Instytut metalokeramiky i spetssplaviv AN UkrSSR (Institute of Metalloceramics and Special Alloys of the AS UkrSSR)

SUBMITTED: February 15, 1960

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ANDRIYEVSKIY, R.A.; FEDORCHENKO, I.M.

Creep processes during the sintering of ceramic metal compacts.
Vop. por. met. i prochn. mat. no.8:24-37 '60.
(MIRA 13:8)
(Ceramic metals) (Sintering) (Creep of metals)

28190
S/021/60/000/010/013/016
D251/D303

15.2660

AUTHORS: Skorokhod, V.V., and Fedorchenko, I.M., Corresponding Member AS UkrSSR

TITLE: On two-phase system sintering

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 10, 1960, 1403 - 1407

TEXT: After referring to the theoretical investigations in this field of B.Ya. Pines (Ref. 1: ZhTF, 24, 9, 1956) the author considers the sintering of two spherical particles, assuming that one of the particles is not deformed during the sintering process. If the particles are A and B as shown in the diagram (Fig. 1), then, writing h = NK,

$$h = R \sin \alpha \operatorname{tg} \frac{\alpha}{2} = 2R \sin^2 \frac{\alpha}{2} \qquad (1)$$

and hence, to the second order of accuracy

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On two-phase system sintering

$$R_1 = R\sqrt[3]{1 + 6\sin^4\frac{\alpha}{2} - 4\sin^6\frac{\alpha}{2}}. \qquad (2)$$

Writing $\sin^2\frac{\alpha}{2} = \varphi$, the free surface energy of the system is

$$F = 4\pi R^2[\sigma_A(1 - \varphi) + \sigma_B(\sqrt[3]{(1 + 6\varphi^2 - 4\varphi^3)^2} - \varphi) + \sigma_{AB}\cdot\varphi]. \qquad (3)$$

Differentiating with respect to φ and equating $\partial F/\partial\varphi$ to zero, gives the equilibrium condition

$$8\frac{\varphi - \varphi^2}{\sqrt[3]{1 + 6\varphi^2 - 4\varphi^3}} = \frac{\sigma_A - \sigma_{AB}}{\sigma_B} + 1. \qquad (4)$$

If $\pi - \vartheta \ll 1$, where ϑ is the angle of solid wetting, then the equilibrium value of the angle of contact α may be found from

$$\frac{r}{R} = \sin\alpha = \cos\frac{\vartheta}{2}. \qquad (5)$$

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On two-phase system sintering

The kinetics of the sintering process are considered, assuming that one of the particles flows viscously.

$$\varphi = \frac{\varkappa}{8} \frac{1 - T(t)}{a - cT(t)}, \qquad (9)$$

is obtained, where

$$\varkappa = 1 + \cos \vartheta, \qquad T(t) = \exp\left(- \frac{6\sigma_B}{R} \sqrt{-\Delta} \int_0^t \frac{dt}{\eta}\right).$$

For $\alpha \ll 1$,

$$\frac{y}{R} = \sin \alpha = \sin \sqrt{\frac{\varkappa}{2} \frac{1 - T(t)}{a - cT(t)}}. \qquad (10)$$

The author remarks that applying these equations meets with some difficulty in practice. There are 2 figures and 2 Soviet-bloc references.

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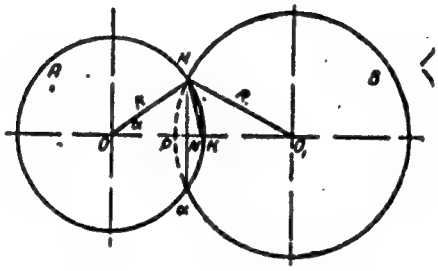
D251/D303

On two-phase system sintering

ASSOCIATION: Instytut metalokeramiky i spetsial'nykh splaviv AN URSR (Institute of Metal Powders and Special Alloys AS UkrSSR)

SUBMITTED: June 9, 1960

Fig. 1.



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S/129/60/000/012/007/013
E073/E235

18 6200

AUTHORS: Andriyevskiy, R. A., Engineer and Fedorchenko, I. M., Corresponding Member of AS UkrSSR

TITLE: Activation of the Process of Sintering of Cermet Iron

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No. 12, pp. 36-39

TEXT: The authors carried out comparative investigations of the effectiveness of various methods of activation. The experiments were carried out on toroidal specimens of reduced iron АПЖМ (APZhM) containing 0.1% C; 0.3% Mn; 0.095% P; 0.045% S; 0.06% Si. The dependences of the magnetic properties on the density of the porous iron sintered under various conditions at 1200°C for 2 hours are graphed. The graphs show the following values as a function of the density g/cm^3 (from top to bottom): H_c oersted, μ, gauss/oersted, B_{15} and Br, gauss. Sintering was effected: (1) in dry hydrogen, (2) in hydrogen of 2% humidity, (3) in hydrogen of 10% humidity, (4) preliminarily oxidized specimens (about 1% O_2) were sintered in dry hydrogen, (5) in

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Activation of the Process of Sintering of Cermet Iron

hydrogen the humidity of which was periodically varied (hydrogen - 7 min, water - 3 min), (6) in an atmosphere of H_2 + HCl, (7) oxidised specimens were sintered in an H_2 + HCl atmosphere, (8) inside Al_2O_3 + 0.1% NH_4Cl, (9) sintering inside Al_2O_3 + 0.1% NH_4F. The heating and cooling (6 to 10 min) was effected in dry hydrogen. In the sintering conditions (5) to (7) the last 20 minutes of holding was in an atmosphere of dry hydrogen. It can be seen from the graph that the most favourable susceptibility and coercive force values were obtained after sintering according to the conditions (6) and (7), i.e. using additions of HCl. The other sintering conditions did not lead to any intensification of the magnetic properties. Sintering in hydrogen with variable humidity led to an improvement of the μ and H_c values, particularly for low specimen densities. In all cases of activated sintering the content of closed pores increased, particularly in the case of low porosities. This indicates intensive development of surface diffusion and transfer of atoms in the gaseous phase. The magnetic

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induction in a field of 15 oersted, B_{15} and the residual induction, are determined mainly by the density of the sintered specimens. Additions of HCl to the sintering atmosphere have a favourable influence on the properties of the sintered iron but its hydrogen content has an unfavourable effect on the corrosion behaviour. It is concluded that the sintering process is activated most effectively by applying an H_2 + HCl atmosphere. The improvement in the properties in this case is attributed to intensive smoothing of the surface of the pores and partial refining of the chemical composition. There are 1 figure and 10 references; 4 Soviet and 6 non-Soviet.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR (Institute of Cermets and Special Alloys, AS, UkrSSR)

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28696
S/021/60/000/012/004/006
D251/D302

1 1600 1045 1521 1555

AUTHORS: Ohorodnykov, V.V., Fedorchenko, I.M., Corresponding Member AS UkrSSR, and Raychenko, O.I.

TITLE: Investigating certain properties of sintered Cu-Ni briquettes

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 12, 1960, 1603-1607

TEXT: A series of experiments was carried out to compare the properties of briquettes of sintered Cu-Ni powders formed from various types of powders: a) Mixtures of copper and nickel powders in the following proportions 80% Cu - 20% Ni and 60% Cu - 40% Ni; b) Powder of cupro-nickel alloys of the same proportional composition, c) Pure copper powder. Sintering was carried out at a temperature of 950°C in an anhydrous medium. The sintering time varied from 15 to 240 minutes. The variation in electrical conductivity with sintering time is given, as is, for compari-

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Investigating certain properties ...

son's sake. I. Odelevs'kyy's equation for a two-phase mixture

$$\lambda_{cym} = \frac{(3\vartheta_1 - 1)\lambda_1 + (3\vartheta_2 - 1)\lambda_2}{4} + \sqrt{\frac{(3\vartheta_1 - 1)\lambda_1 + (3\vartheta_2 - 1)\lambda_2}{16} + \frac{\lambda_1\lambda_2}{2}} \quad (1)$$

where $\lambda_{CYM} = \lambda_{mix}$ is the conductivity of the components, and ϑ_1, ϑ_2 the porosity of the components. It was also found that the shrinkage process is more rapid in the case of alloy powders than in the case of mixtures of the same concentration, and that the strength of briquettes from alloy powders is greater than that of briquettes from mixtures. The variation of concentration on sintering powder-mixture briquettes due to inter-diffusion of copper and nickel may be found from the magnitude of the conductivity with zero porosity which makes it possible to obtain an exact

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chart of the course of the homogenization process. There are 4 figures and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: R.S. Barnes, Phil. Mag., 43, 7, Series 1221 (L952); C.G. Smithalls, Metals Ref. Book, 11, London, 1955.

ASSOCIATION: Instytut metalokeramiky i spetsplaviv AN USSR (Institute of Metallo-ceramics and Special Alloys AS UkrSSR)

SUBMITTED: March 18, 1960

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18.6200

S/170/60/003/03/13/034
B014/B007

AUTHORS: Andriyevskiy, R. A., Fedorchenko, I. M.

TITLE: The Influence Exerted by a Previous Deformation on Densification in the Sintering of Powder Bodies

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 3, pp. 83-86

TEXT: In the present paper the influence exerted by the deformations caused in powder metallurgy by the pressing of briquets upon subsequent sintering is investigated. In the course of the experiments, copper- and nickel powders were pressed into briquets of different degrees of porosity. These briquets were sintered in a hydrogen atmosphere at 600, 700, and 800°C, after which they were pressed to a certain density. For copper, second sintering was carried out at a temperature of 800°C, for nickel at 800-900°C. From the results obtained by the investigations, which are shown in Tables 1 and 2, the following may be seen: Previous sintering at 600°C, and especially at 700°C, reduces densification by second sintering in comparison to the densification of the briquets without intermediate sintering. The higher the sintering temperature in first sintering, the less is density changed in second sintering. Pressing the briquets sintered once does not lead to greater changes in density by second sintering compared to briquets which, though pre-sintered, have nevertheless not been pressed be-

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The Influence Exerted by a Previous Deformation on Densification in the Sintering of Powder Bodies

S/170/60/003/03/13/034
B014/B007

fore the second sintering. Furthermore, the causes of the decrease of densification by sintering after previous annealing of the powders, and the above shown decrease of densification of the pre-sintered pressed briquets by the second sintering are discussed. Two causes are mentioned: The first is the decrease of the concentration of nonequilibrium defects occurring in pre-sintering. The second is the increasing "cross section" due to surface diffusion, evaporation, and condensation of atoms. The authors discuss the result, according to which total densification is lower after two sinterings than after sintering only once on the basis of thermodynamic considerations. The results given here agree with the investigations made on iron dust (Refs. 6-8). The conclusion is drawn that in the case of most materials, pressing does not influence the change in the properties of powdered bodies in sintering. Finally, the limits of the statement made are investigated. There are 2 tables and 14 references: 10 Soviet, 1 German, 1 French, and

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR, g. Kiyev (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR, City of Kiyev)

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S/126/60/009/06/003/025
E073/E335

AUTHORS: Raychenko, A.I. and Fedorchenko, I.M.

TITLE: On Calculating the Electric Conductivity of Two-component Cermets

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 6, pp 815 - 822 (USSR)

ABSTRACT: Rhines and Colton (Ref 1) made an attempt to compute theoretically the electric resistance of a mixed sinter alloy as a function of the conditions of sintering. In their attempt, the authors did not choose correctly the model of conductivity of the binary nonhomogeneous alloy; they assumed that the current would flow only through the double pyramid (Figure 1), although the medium surrounding it is as good a conductor as is the pyramid. Furthermore, the authors dealt only with the particular 50-50 concentration. The authors of this paper attempted to solve the problem of quantitative evaluation of the conductivity of substances produced by powder-metallurgy methods, taking fully into consideration the mutual solubility, based on an earlier described model (Ref 2) of a two-component powder body, and a concentration

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On Calculating the Electric Conductivity of Two-component Cermets

distribution corresponding to the one obtained theoretically and experimentally in earlier work (Ref 3). By solving the diffusion equations for the model of a two-component powder body (Ref 2) and the the concentrational distributions, the authors have succeeded in evaluating the electrical conductivity of a powder alloy made of two metals which are fully soluble in each other. It is shown that the results of theoretical calculations are in good agreement with experimental results obtained for Cu-Ni alloys with various Cu (80 - 40%) and Ni (20 - 60%) contents. The ideas expressed by the authors permit investigating the influence of surface and volume phenomena during sintering, evaluating the degree of correctness of applied concentrational distributions and determining the influence of the origin of the powders on increases in the value of the diffusion coefficient. Acknowledgments are expressed to Yu.B. Blagoveshchenskiy and his team for the analytical solution of the system of equations by means of a computer of the Computing Centre of the Ac.Sc., Ukrainian SSR.

VB

S/126/60/009/06/003/025
E073/E335

On Calculating the Electric Conductivity of Two-component Cermets

There are 7 figures, 1 table and 10 references, 8 of which are Soviet and 2 English.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Cermets and Special Alloys of the Ac.Sc. Ukrainian SSR)

SUBMITTED: July 22, 1959 - originally;
January 23, 1960 - after revision.

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VB